

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P1247/W0D	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/04133	International filing date (day/month/year) 26/10/2000	(Earliest) Priority Date (day/month/year) 26/10/1999
Applicant THE SECRETARY OF STATE FOR DEFENCE et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

MUTANT LUCIFERASE

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/04133

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/53 C12N9/02 C12Q1/66

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

CHEM ABS Data, STRAND

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 14336 A (PROMEGA CORPORATION (US); WOOD KEITH V.; HALL MARY P.) 25 March 1999 (1999-03-25) page 5, line 1-15; figure 19 page 36 -page 40; example 4 Mutant Luc78-0B10 page 67 Mutant Luc90-1B5 page 69 page 71 -page 72; tables 2,3 page 77 -page 106; claims figures 36,38,39,41,43 --- -/--	1,2,5,6, 11,12, 14-16, 18-23



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

20 July 2001

Date of mailing of the international search report

01/08/2001

Name and mailing address of the ISA

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Macchia, G

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/04133

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E ②	<p>WO 01 20002 A (PROMEGA CORPORATION (US); WOOD KEITH V.; HALL MARY P.; GRUBER MONIKA) 22 March 2001 (2001-03-22)</p> <p>Mutant Luc78-0B10, SEQ ID NO:6,19; Mutant Luc90-1B5, SEQ ID NO:11,24; Mutant Luc133-1B2, SEQ ID NO:42,44; Mutant Luc146-1H2, SEQ ID NO:43,45 page 8 -page 12; figures 19A,32,36,42,43,55,56,57,58 page 27 -page 32 page 52 -page 81</p> <p>---</p>	1,2,5,6, 11,12, 14-16, 18-23
A ③	<p>LI YE ET AL.: "Cloning and sequencing of a cDNA for firefly luciferase from Photuris pennsylvanica" BIOCHIMICA ET BIOPHYSICA ACTA, vol. 1339, 25 April 1997 (1997-04-25), pages 39-52, XP000909154 ISSN: 0006-3002 cited in the application page 40; table 1 page 42 -page 44; figure 2</p> <p>---</p>	
A ④	<p>WO 95 25798 A (SECRETARY STATE DEFENCE UNITED KINGDOM; LOWE; WHITE; MURRAY; SQUIRREL) 28 September 1995 (1995-09-28) cited in the application</p> <p>---</p>	
A ⑤	<p>WHITE P.J. ET AL: "Improved thermostability of the North American firefly luciferase: saturation mutagenesis at position 354" BIOCHEMICAL JOURNAL, vol. 319, 1996, pages 343-350, XP002097112 ISSN: 0264-6021</p> <p>---</p>	
A ⑥	<p>VIVIANI V.R. ET AL.: "Cloning, sequence analysis and expression of active Phrixothrix railroad-worms luciferases: relationship between bioluminescence spectra and primary structures" BIOCHEMISTRY, vol. 38, no. 26, 29 June 1999 (1999-06-29), pages 8271-8279, XP002172177 cited in the application page 8275; figure 5</p> <p>-----</p>	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/04133

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9914336	A	25-03-1999	AU	9492198 A	05-04-1999
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			EP	0751996 A	08-01-1997
			FI	963741 A	20-11-1996
			GB	2301592 A, B	11-12-1996
			JP	9510610 T	28-10-1997
			NO	963983 A	23-09-1996
US	6132983 A	17-10-2000			
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